OPERATION & MAINTENANCE PLAN

For
SHADOW RUN RANCH

TM 5223

Preparation/Revision Date:

November 21, 2013

May 19, 2014

Prepared for:

Sherrill Ann Schoepe, General Partner

Shadow Run Ranch, LLC

P.O. Box 1249

Pauma Valley, CA 92061

Telephone: (760) 742-1893

Prepared by:

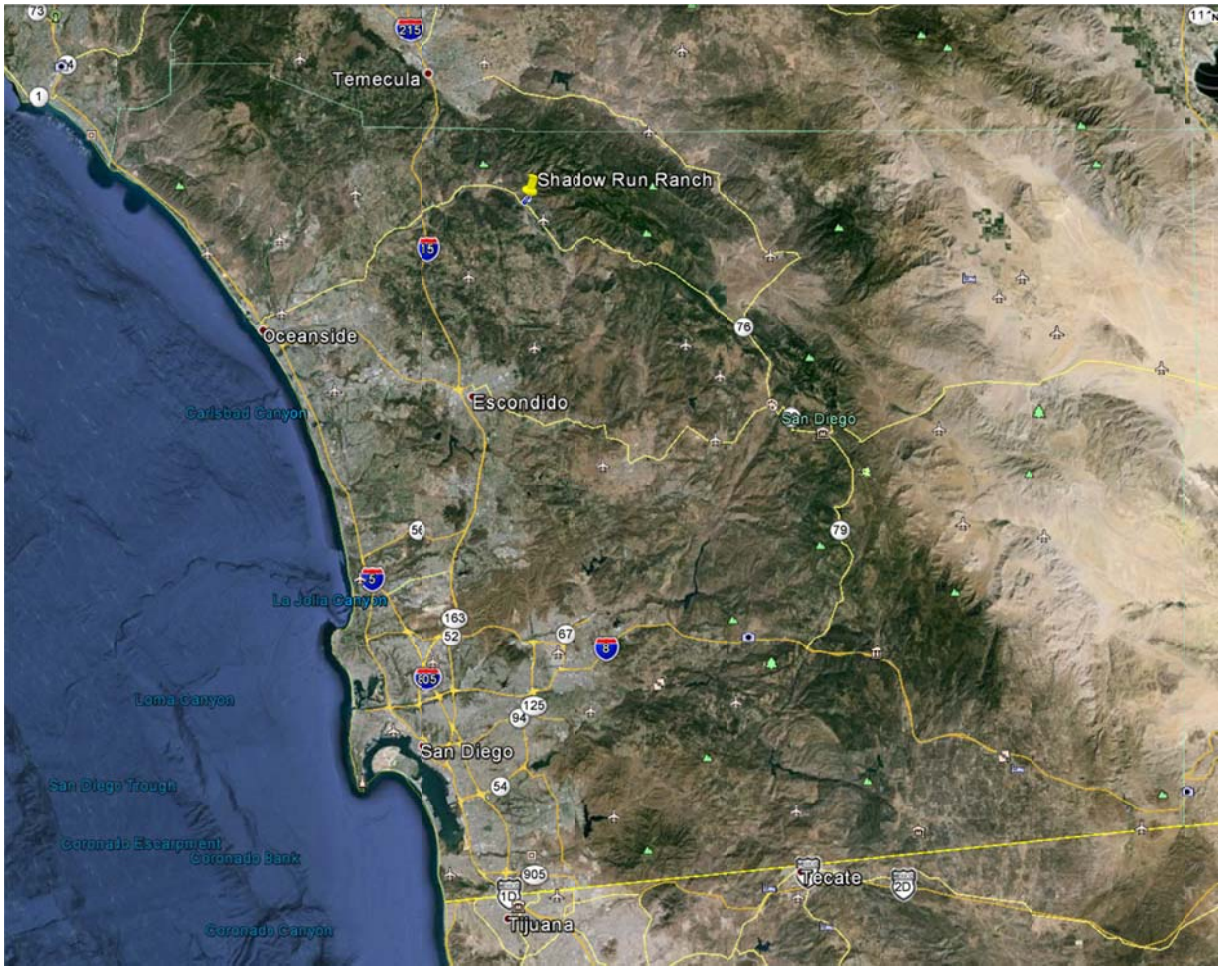
Masson & Associates, Inc.

200 East Washington Avenue, Suite 200

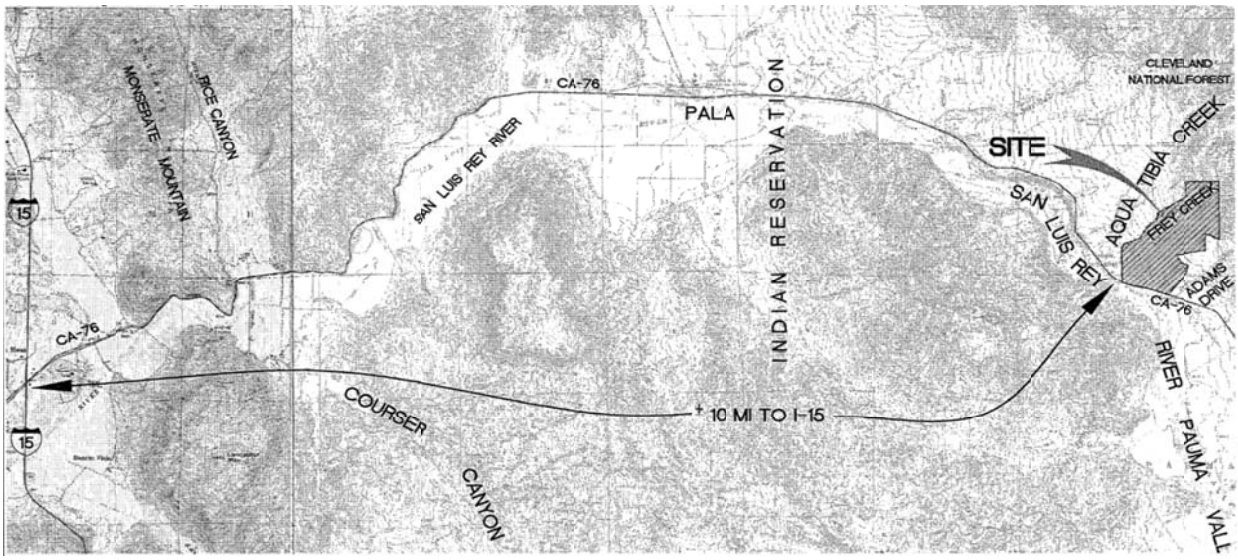
Escondido, CA 92025

Telephone: (760) 741-3570

Regional map:



Project location Map:



Reservoir area:

1.0 Purpose of Document

The proposed project's HOA, County of San Diego as well as the ongoing agricultural operations and future home owners of the project are stakeholders in this Operations and Maintenance Plan (O&M). The following is an outline of the system and elements affected by this O&M. The operation and maintenance of the existing reservoir are the responsibility of the project proponent and their successors in title. They will enter into a MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT with the County of San Diego to implement this O&M. The operation and maintenance associated with the existing reservoir are discussed below. The discussion includes a routine action, maintenance indicator, field observation methods, frequency, and maintenance activity. Costs associated with each activity are included. The scope and purpose of this O&M is to ensure the operational items associated with the existing reservoir are working properly and the safety and stability of the reservoir are maintained at optimum working levels.

The Four primary maintenance areas for the reservoir are as follows:

1. Reservoir embankment [AREA 1]
    a. Stability
    b. Landscaping
    c. Irrigation
    d. Burrowing animals
2. Reservoir spillway [AREA 2]
    a. Stability
    b. Energy dissipaters
    c. Scour
3. Reservoir drain lines [AREA-3]
    a. Pipeline condition
    b. Shutoff valves
    c. Drain valves
4. Monitoring wells [AREA-4]
    a. Depth to ground water

The landscape architect should choose plant coverage for slope protection and erosion control along the outer edge of the reservoir embankment that will be high in erosion control value with shallow root systems and which will deter small burrowing animals. The reservoir slope embankment shall be watered sparingly to maintain landscape coverage for erosion control.

2.0 Facilities and Resources

The facilities and resources identified to be managed and inspected are shown above and attached as graphic **EXHIBIT "A" - "RESERVOIR AREAS".** The management and inspection of the reservoir will be the responsibility of the ownership of the recreational open space lot 47 of TM 5223 (the homeowners association (HOA)). The property manager(s) of the

HOA shall at all times have a qualified grove manager(s) that will be employed by said HOA and have a set number of hours dedicated monthly to inspect and fill out inspection reports in conformance with this Operations and Maintenance Plan. The Grove Manager will receive on-site training in the proper maintenance and repair of the facility. The HOA shall dedicate $6,000 yearly and have a reserve fund to anticipate any startup and ongoing maintenance of the reservoir systems. Additionally the reservoir shall be inspected by a registered Civil Engineer or registered Geologist on a yearly basis for any additional recommendations.

3.0 Operations

The goal of this O&M is to ensure safety and operational conditions of all reservoir systems on a monthly basis. This includes; testing the valves on the two (2) 6" irrigation/down drain lines and the one (1) 10" down drain line. These valves and pipes shall be maintained and operational so that they can be utilized in case of an emergency to drawdown ½ the reservoir capacity within 7 days, and completely drain the reservoir within 20 days.

The report shall contain, at a minimum, the following items: Example inspection report attached as Exhibit "B".

Inspection Protocol: Inspections will include:

- Date of inspection
- Reservoir level
- Water use in previous month
- Note any unusual signs of changed water levels
- Condition of the spillway
- Check scour and erosion
- Condition of the 6" drain line
- Condition of the 10" drain line
- Overall embankment stability
- Any signs of slope movement
- Any signs of seepage around or below reservoir
- Any rock falls nearby
- Vegetation control
- Control of burrowing animals
- Irrigation control
- Three existing monitoring wells

Inspections:

The grove manager shall visually inspect on a monthly basis, the entire slope embankment [Area 1] of the reservoir including the spillway [Area 2] looking for any settlement, surface cracking, burrowing animals, overwatering and seepage. In addition the (2) 6" drain line pipes and (1) 10" drain line pipe [Area 3] shall be tested monthly, to ensure the valves and drain capacities are working properly.

On a monthly basis, or if an earthquake is felt at or near the reservoir (as outlined below), measure and record the depth to groundwater in the three existing monitoring wells at the top of the reservoir embankment [Area 4]. The HOA shall be notified immediately if any substantially changed groundwater levels are indicated. The reports shall be submitted to the HOA and COSD within 10 working days of the date of the inspection and will be filed in the HOA manager's office and shall be stored for 5 years.

Special inspections:

If an earthquake occurs at or near the reservoir, or has been reported to occur, within the following criteria, immediate inspection shall be required:

- $M \geq 4.0$ w/in 25 miles,
- $M \geq 5.0$ w/in 50 miles,
- $M \geq 6.0$ w/in 75 miles,
- $M \geq 7.0$ w/in 125 miles,
- $M \geq 8.0$ w/in 200 miles,

If such an earthquake occurs, the following items shall be inspected and reported upon:

- Date of inspection
- Reservoir level
- Water use in previous month
- Note any unusual signs of changed water levels
- Condition of the spillway
- Check scour and erosion
- Condition of the 6" drain line
- Condition of the 10" drain line
- Overall embankment stability
- Any signs of slope movement
- Any signs of seepage around or below reservoir
- Any rock falls nearby
- Vegetation control
- Control of burrowing animals
- Irrigation control
- Three existing monitoring wells

Repairs recommended in the inspection reports shall be accomplished within: 10 working days, or immediately for repairs that are mandated by reservoir stability issues.

4.0 Maintenance / Repair

IMPLEMENTATION AND MAINTENANCE REQUIREMENTS

The primary maintenance requirements for the reservoir are as follows:

- Weed, prune, and water, especially during plant establishment
- Keep landscape healthy and clean
- The grounds, consisting of the inner embankment and the perimeter pad, shall be free of large deep rooted trees and bushes
- Maintain control of small burrowing animals
- When encountered burrowing animals shall be removed and any holes filled in

Aesthetic and Functional Maintenance:

Aesthetic maintenance is important for public acceptance of facilities. Functional maintenance is important for performance and safety reasons.

Both forms of maintenance will be combined into overall system maintenance.

Aesthetic Maintenance

The following activities will be included in the aesthetics maintenance program:

- Replace dead or dying plants.
- Weed Control.
- Weeds will be removed through mechanical means.
- Herbicide will not be used because these chemicals impact the water quality.
- Prune overgrown plants.

Functional Maintenance

Components of a Functional Maintenance program include Preventive Maintenance and Corrective Maintenance.

a. **Preventive Maintenance -** Preventive maintenance activities to be instituted are:

- Trash and Debris. During each inspection, debris and trash removal will be conducted.
- Down drain outlet piping: Visual inspection of (2) 6" drain line pipes and (1) 10" drain line pipe shall be inspected and checked for leaking and or corrosive condition.
- Test down drain system. During each inspection, each down drain pipe shall be tested. Open valves and check valves and piping for any leaking.

- Sediment Removal. Sediment accumulation, as part of the operation and maintenance program at the spillway, will be monitored quarterly during the dry season, and after every large storm (0.50 inch), and monthly during the wet season. If accumulation of debris or sediment is determined to cause of decline in design performance, prompt action (i.e., within ten working days) will be taken to restore to design performance standards. Actions will include removal of sediment. Characterization and appropriate disposal of sediment will comply with applicable local, county, state, or federal requirements.
- Removal of Standing Water - Standing water must be removed if it contributes to the development of aquatic plant communities or mosquito breeding areas. Water standing for more than 96 hours will be removed.
- Fertilization – Any vegetation seed mix will be designed so that fertilization and irrigation (after establishment of the planting) is not necessary. Fertilizers will not be used to maintain the vegetation.
- On a monthly basis, and if an earthquake is felt at or near the reservoir (as outlined above) measure and record the depth to groundwater in the three existing monitoring wells at the top of the reservoir embankment. Notify the HOA and the Geotechnical Engineer of Record immediately if any substantially changed groundwater levels are indicated.

b. **Corrective Maintenance -** Corrective maintenance is required on an emergency or non-routine basis to correct problems and to restore the intended operation and safe function.

   Corrective maintenance activities include:

   - Removal of Debris and Sediment - Sediment, debris and trash, which impede the hydraulic functioning of reservoir spillway and vegetative growth, will be removed and properly disposed.
   - Down drain outlet piping – two (2) 6" drain line pipes and one (1) 10" drain line pipe. Paint exposed piping, poly-wrap pipe protection if necessary, replace damaged sections.
   - Test down drain system. Replace valves if necessary.
   - Embankment and Slope Repairs – Damaged to slopes and embankments will be evidenced by erosion or collapsed surface areas. Once deemed necessary, damage to the slopes of the reservoir embankment will be repaired (within 10 working days).
   - Erosion Repair – Erosion will be evident by rills or small gullies in the surfaces of the reservoir embankment slope. Corrective steps will be taken to prevent loss of soil and any subsequent danger to the performance of the reservoir embankment. There are a number of corrective actions that can be taken. These include temporary measures such as erosion control blankets or reducing flow through the area. Designers or contractors will be consulted to address erosion problems if the solution is not evident.
   - Elimination of Animal Burrows - Animal burrows (evidenced by holes & mounds) will be filled and steps taken to remove the animals if burrowing

problems continue to occur (filling and compacting). If the problem persists, vector control specialists will be consulted regarding removal steps. This consulting is necessary as the threat of rabies in some areas may necessitate the animals being destroyed rather than relocated. If the reservoir embankment performance is affected, abatement will begin. Otherwise, abatement will be performed annually in September.

- General Facility Maintenance - In addition to the above elements of corrective maintenance, general corrective maintenance will address the overall facility and its associated components. If corrective maintenance is being done to one component, other components will be inspected to see if maintenance is needed.
- Replace dead or dying plant material.

Table 1: Shadow Run Ranch Reservoir Operations and Maintenance Plan Schedule

Action	Responsible Party	Frequency	Threshold for Action	Reporting Requirement
Inspect Embankment, Reservoir, Spillway	HOA, Grove Manager	Monthly or as needed	As regularly scheduled for the month or after any ground shaking, unexpected change in water level, reported change in embankment vegetation cover or report of changes by residences.	Reservoir Maintenance Record Monthly Entry or after specific incident
Inspect Embankment, Reservoir, Spillway	HOA, Geotechnical Engineer	Annually or as needed	As regularly scheduled for the year or as requested by HOA	Reservoir Maintenance Record Annual Entry or after specific call

Table 2: Observations Triggering Non-Routine Maintenance and Repairs

No.	Inspection	Procedure	Trigger	Follow-up
1	Reservoir level	Determine normal range of elevation changes considering rainfall, humidity, temperature, grove irrigation rates, etc.	If the reservoir level drops more than 15% beyond the expected amount, and there is no visible leakage or seepage, or pipe leakage, contact the Geotechnical Engineer of Record (GER) immediately.	Geotechnical Engineer of Record shall perform an inspection within 10 calendar days and determine the cause of the unexpected drop in reservoir level. The GER shall recommend a repair and specify a deadline for the repair, based on the level of urgency of the problem.
2	Water use in previous month	_____C.F.	See Item 1, above	
3	Note any unusual signs of changed water levels		See Item 1, above	
4	Condition of the spillway	Inspect per Section 4 of the report.	If there are any cracks, or leaks in the spillway, contact the Civil Engineer of Record (CER) immediately.	The CER shall perform an inspection within 10 calendar days and determine the cause of the leaks or cracks. The CER shall recommend a repair and specify a deadline for the repair, based on the level of urgency of the problem.
5	Check scour and erosion	Inspect per Section 4 of the report.	If there is any evidence of excessive (more than 6") scour or erosion below the	The CER shall perform an inspection within 10 calendar days and determine the cause of the excessive scour or

			spillway, or on the embankment, contact the Civil Engineer of Record (CER). Otherwise, follow the procedures in Section 4 of the report.	erosion. The CER shall recommend a repair and specify a deadline for the repair, based on the level of urgency of the problem.
6	Condition of the 6” drain line	Inspect per Section 4 of the report.	If valves do not operate properly, repair or replace within 14 calendar days.	
7	Condition of the 10” drain line	Inspect per Section 4 of the report.	If valves do not operate properly, repair or replace within 14 calendar days.	
8	Overall embankment stability	Inspect per Section 4 of the report.	If there are signs of movement of the embankment, contact the GER immediately.	Consult with the GER immediately to determine if an immediate evacuation is necessary. Otherwise the GER shall perform an inspection within 24 hours and determine the cause of the embankment movement. The GER shall recommend a repair and specify a deadline for the repair, based on the level of urgency of the problem.
9	Any signs of slope movement	See Item 8, above.		

10	Any signs of seepage around or below reservoir	Inspect per Section 4 of the report.	If there are signs of excessive seepage of the embankment, contact the GER immediately.	Consult with the GER immediately to determine if an immediate evacuation is necessary. Otherwise the GER shall perform an inspection within 24 hours and determine the cause of the seepage. The GER shall recommend a repair and specify a deadline for the repair, based on the level of urgency of the problem.
11	Any rock falls nearby	Inspect per Section 4 of the report.	If the rock falls are indicative of movement of the embankment or the immediately adjacent soils or rocks, contact the GER immediately.	Consult with the GER immediately to determine if an immediate evacuation is necessary. Otherwise the GER shall perform an inspection within 24 hours and determine the cause of the rockfall. The GER shall recommend a repair and specify a deadline for the repair, based on the level of urgency of the problem.
12	Vegetation control	Inspect, maintain and repair per Section 4 of the report.		
13	Control of burrowing animals	Inspect, maintain and repair per		

		Section 4 of the report.		
14	Irrigation control	Check for overwatering.	Adjust irrigation rate.	
15	Three existing monitoring wells	Inspect, maintain and repair per Section 4 of the report. Determine the normal relationship between the water level in the wells and the reservoir.	If the water level in the wells does not follow the normal relationship between the wells and the reservoir, contact the GER immediately.	Consult with the GER immediately to determine if an immediate evacuation is necessary. Otherwise the GER shall perform an inspection within 10 calendar days and determine the cause of the rockfall. The GER shall recommend a repair and specify a deadline for the repair, based on the level of urgency of the problem.

Regulatory Assurance

Maintenance is assured by the Major Use Permit # _____ and conditions of approval, as well as a MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT with the County of San Diego, which will be recorded against the property and run with the land.

Maintenance Costs

A detailed cost breakdown for the operation & maintenance of each area / system are attached and made part of this document. Total estimated annual costs for each are:

Reservoir embankment = $2000
Down drain piping = $500
Water valves = $500
Landscaping = $2000
Irrigation = $500
Burrowing animals = $500
Total ---------- $6000 yearly.

Inspection Frequency

- All items above will be monitored monthly and after every large storm (rainfall of 0.50 inch or more).
- After each seismic event as listed above.

Each inspection will be fully documented and made available upon request. Records will be kept for a minimum of 5 years.

Sherrill Schoepe Shadow Run Ranch, LLC Post Office Box 1249 Pauma Valley, CA 92061

EXHIBIT "A"

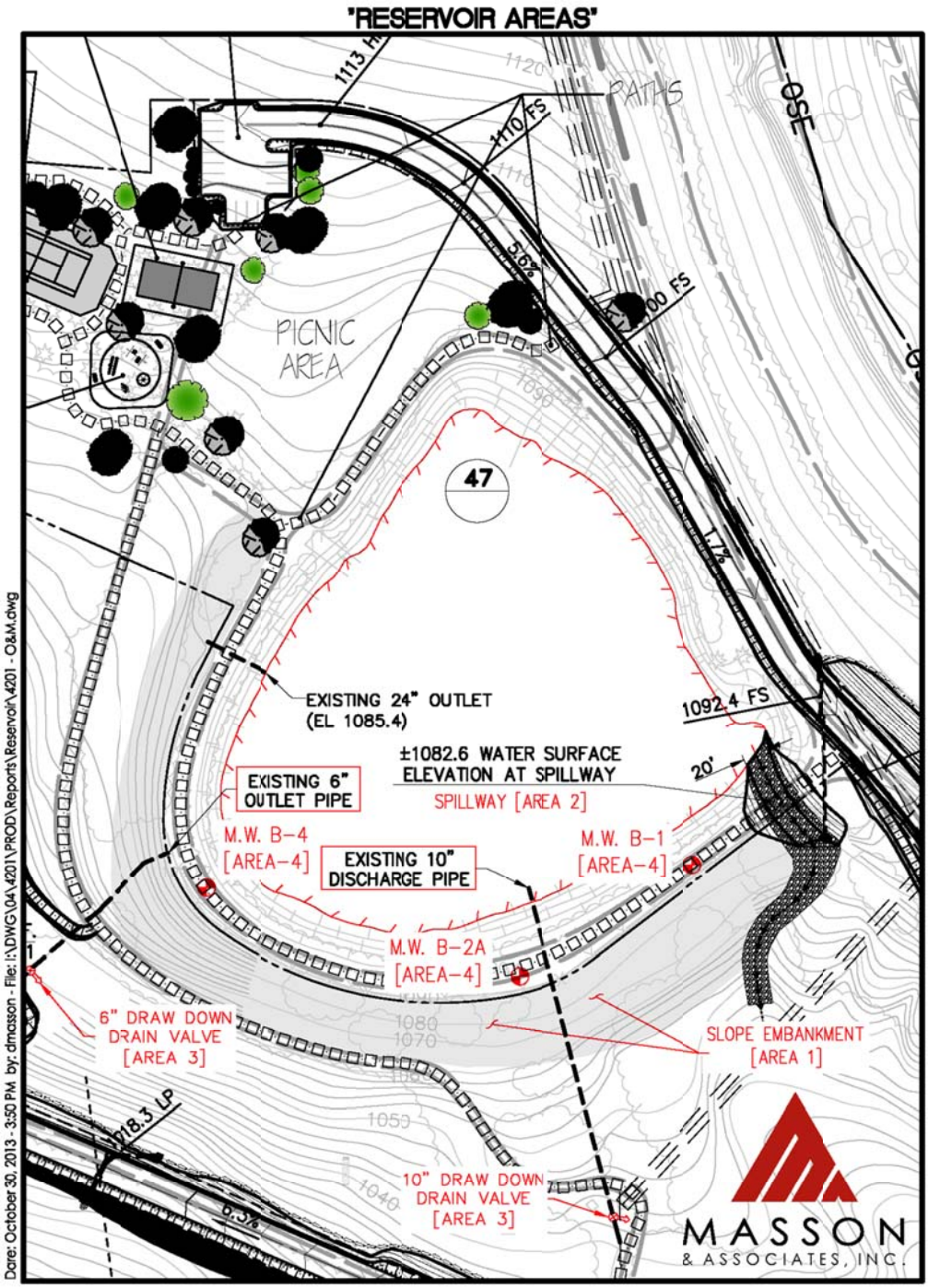

"RESERVOIR AREAS"
PICNIC AREA
PATHS
47
EXISTING 24" OUTLET (EL 1085.4)
±1082.6 WATER SURFACE ELEVATION AT SPILLWAY
SPILLWAY [AREA 2]
EXISTING 6" OUTLET PIPE
EXISTING 10" DISCHARGE PIPE
M.W. B-4 [AREA-4]
M.W. B-1 [AREA-4]
M.W. B-2A [AREA-4]
6" DRAW DOWN DRAIN VALVE [AREA 3]
10" DRAW DOWN DRAIN VALVE [AREA 3]
SLOPE EMBANKMENT [AREA 1]
1092.4 FS
1110 FS
1113 HP
18.3 LP
MASSON & ASSOCIATES, INC.
Date: October 30, 2013 - 3:50 PM by: dmasson - File: I:\DWG\04\4201\PROD\Reports\Reservoir\4201 - O&M.dwg

EXHIBIT "B"

ENGINEERS INSPECTION REPORT

OFFICE OF THE STATE ENGINEER-DIVISION OF WATER RESOURCES - DAM SAFETY BRANCH
1313 Sherman Street, Room 818, Denver, CO 80203, (303) 866-3581

DAM NAME _____ W. DIV. _____ W. DIST. _____ DATE OF INSPECTION ___/___/___

DAM ID _____ FILE NO. C- _____ FOREST I.D. _____ DATE OF LAST INSPECTION ___/___/___

OWNER NAME _____ OWNER PHONE _____

ADDRESS _____ ZIP CODE _____

CONTACT NAME _____ CONTACT PHONE _____

CLASS _____ CAPACITY _____ AF SURFACE AREA _____ AC. HEIGHT _____ FT. CREST LENGTH _____ FT CREST WIDTH _____ FT.

CURRENT RESTRICTION ☐ (NO) ☐ (YES) LEVEL _____ EPP ON FILE ☐ (NO) ☐ (YES) SPWY WIDTH _____ FT. FBD. _____ FT. Z _____

INSPECTION PARTY REPRESENTING _____ _____ _____

DIRECTIONS: MARK AN **X** FOR CONDITIONS FOUND **AND** UNDERLINE WORDS THAT APPLY. GIVE LOCATION AND EXTENT WITH NUMBER REFERENCE I.E (25) ALL ALONG SLOPE, OR SHOW IT ON SKETCH.

FIELD CONDITIONS OBSERVED

WATER LEVEL - BELOW DAM CREST _____ FT., BELOW SPILLWAY _____ FT., GAGE ROD _____

GROUND MOISTURE CONDITION: DRY _____ WET _____ SNOWCOVER _____ OTHER _____

UPSTREAM SLOPE

PROBLEMS NOTED: ☐ (0) NONE ☐ (1) RIPRAP - MISSING, SPARSE, DISPLACED, WEATHERED ☐ (2) WAVE EROSION-WITH SCARPS
☐ (3) CRACKS-WITH DISPLACEMENT ☐ (4) SINKHOLE ☐ (5) APPEARS TOO STEEP ☐ (6) DEPRESSIONS OR BULGES ☐ (7) SLIDES
☐ (8) CONCRETE FACING-HOLES, CRACKS, DISPLACED, UNDERMINED ☐ (9) OTHER _____
Comments: _____

CREST

PROBLEMS NOTED: ☐ (10) NONE ☐ (11) RUTS OR PUDDLES ☐ (12) EROSION ☐ (13) CRACKS - WITH DISPLACEMENT ☐ (14) SINKHOLES
☐ (15) NOT WIDE ENOUGH ☐ (16) LOW AREA ☐ (17) MISALIGNMENT ☐ (18) INADEQUATE SURFACE DRAINAGE
☐ (19) OTHER _____
Comments: _____

DOWNSTREAM SLOPE

PROBLEMS NOTED: ☐ (20) NONE ☐ (21) LIVESTOCK DAMAGE ☐ (22) EROSION OR GULLIES ☐ (23) CRACKS - WITH DISPLACEMENT ☐ (24) SINKHOLE
☐ (25) APPEARS TOO STEEP ☐ (26) DEPRESSION OR BULGES ☐ (27) SLIDE ☐ (28) SOFT AREAS ☐ (29) OTHER _____
Comments: _____

SEEPAGE

PROBLEMS NOTED: ☐ (30) NONE ☐ (31) SATURATED EMBANKMENT AREA ☐ (32) SEEPAGE EXITS ON EMBANKMENT
☐ (33) SEEPAGE EXITS AT POINT SOURCE ☐ (34) SEEPAGE AREA AT TOE ☐ (35) FLOW ADJACENT TO OUTLET ☐ (36) SEEPAGE INCREASED/MUDDY
DRAIN OUTFALLS SEEN __No __Yes ☐ (37) FLOW INCREASED/MUDDY ☐ (38) DRAIN DRY/OBSTRUCTED
☐ (39) OTHER _____ Show location of drains on sketch and indicate amount and quality of discharge
Comments: _____

OUTLET

PROBLEMS NOTED: ☐ (40) NONE ☐ (41) NO OUTLET FOUND ☐ (42) POOR OPERATING ACCESS ☐ (43) INOPERABLE
☐ (44) UPSTREAM OR DOWNSTREAM STRUCTURE DETERIORATED ☐ (45) OUTLET NOT OPERATED DURING INSPECTION
INTERIOR INSPECTED ☐ (120) NO ☐ (121) YES ☐ (46) CONDUIT DETERIORATED OR COLLAPSED ☐ (47) JOINTS DISPLACED ☐ (48) VALVE LEAKAGE
☐ (49) OTHER _____
Comments: _____

SPILLWAY

PROBLEMS NOTED: ☐ (50) NONE ☐ (51) NO EMERGENCY SPILLWAY FOUND ☐ (52) EROSION-WITH BACKCUTTING ☐ (53) CRACK - WITH DISPLACEMENT
☐ (54) APPEARS TO BE STRUCTURALLY INADEQUATE ☐ (55) APPEARS TOO SMALL ☐ (56) INADEQUATE FREEBOARD ☐ (57) FLOW OBSTRUCTED
☐ (58) CONCRETE DETERIORATED/UNDERMINED ☐ (59) OTHER _____
Comments: _____

See Guidelines on Back of this Sheet

Conditions Observed	GOOD	ACCEPTABLE	POOR
UPSTREAM SLOPE			
CREST			
DOWNSTREAM SLOPE			
SEEPAGE			
OUTLET			
SPILLWAY			

DC185a-85

EXHIBIT "B"

GUIDELINES FOR DETERMINING CONDITIONS

CONDITIONS OBSERVED - APPLIES TO UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, OUTLET, SPILLWAY

GOOD	ACCEPTABLE	POOR
In general, this part of the structure has a near new appearance, and conditions observed in this area do not appear to threater the safety of the dam.	Although general cross-section is maintained, surfaces may be irregular, eroded, rutted, spalled, or otherwise not in new condition. Conditions in this area do not currently appear to threaten the safety of the dam.	Conditions observed in this area appear to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO SEEPAGE

GOOD	ACCEPTABLE	POOR
No evidence of uncontrolled seepage. No unexplained increase in flows from designed drains. All seepage is clear. Seepage conditions do not appear to threaten the safety of the dam.	Some seepage exists at areas other than the drain outfalls, or other designed drains. No unexplained increase in seepage. All seepage is clear. Seepage conditions observed do not currently appear to threaten the safety of the dam.	Seepage conditions observed appear to threaten the safety of the dam. Examples: 1) Designed drain or seepage flows have increased without increase in reservoir level. 2) Drain or seepage flows contain sediment, i.e., muddy water or particles in jar samples. 3) Widespread seepage, concentrated seepage or ponding appears to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO MONITORING

GOOD	ACCEPTABLE	POOR
Monitoring includes movement surveys and leakage measurements for all dams, and piezometer readings for Class I dams. Instrumentation is in reliable, working condition. A plan for monitoring the instrumentation and analyzing results by the owner's **engineer** is in effect. Periodic inspections by owner's engineer.	Monitoring includes movement surveys and leakage measurements for Class I & II dams; leakage measurements for Class III dams. Instrumentation is in serviceable condition. A plan for monitoring instrumentation is in effect by **owner**. Periodic inspections by owner or representative. OR, NO MONITORING REQUIRED.	All instrumentation and monitoring described under "ACCEPTABLE" here for each class of dam, are not provided, or required periodic readings are not being made, or unexplained changes in readings are not reacted to by the owner.

CONDITIONS OBSERVED - APPLIES TO MAINTENANCE AND REPAIR

GOOD	ACCEPTABLE	POOR
Dam appears to receive effective on-going maintenance and repair, and only a few minor items may need to be addressed.	Dam appears to receive maintenance, but some maintenance items need to be addressed. No major repairs are required.	Dam does not appear to receive adequate maintenance. One or more items needing maintenance or repair has begun to threaten the safety of the dam.

OVERALL CONDITIONS

SATISFACTORY	CONDITIONALLY SATISFACTORY	UNSATISFACTORY
The safety inspection indicates no conditions that appear to threaten the safety of the dan, and the dam is expected to perform satisfactorily under all design loading conditions. Most of the required monitoring is being performed.	The safety inspection indicates symptoms of *possible* structural distress (seepage, evidence of minor displacements, etc.), which, if conditions worsen *could* lead to the failure of the dam. Essential monitoring, inspection, and maintenance must be performed as a requirement for continued full or reduced storage in the reservoir.	The safety inspection indicates *definite* signs of structural distress (excessive seepage, cracks, slides, sinkholes, severe deterioration, etc.), which *could* lead to the failure of the dam if the reservoir is used to full capacity. The dam is judged unsafe for full storage of water.

SAFE STORAGE LEVEL

FULL STORAGE	CONDITIONAL FULL STORAGE	RESTRICTION
Dam may be used to full capacity with no conditions attached.	Dam may be used to full storage if certain monitoring, maintenance, or operational conditions are met.	Dam may not be used to full capacity, but must be operated at some reduced level in the interest of public safety.

CLASSIFICATION OF DAMS

CLASS I	CLASS II	CLASS III
Class I - Loss of human life is expected in the event of failure of the dam, while the reservoir is at the high water line.	Class II - Significant damage to improved property is expected in the event of failure of the dam while the reservoir is at the high water line, but no loss of human life is expected.	Class III - Loss of human life is not expected, and damage to improved property is expected to be small, in the event of failure of the dam while the reservoir is at high water line.

EXHIBIT "B"

DAM NAME: _____ DAM I.D.: _____ DATE ___/___/___

MONITORING

EXISTING INSTRUMENTATION FOUND ☐ (110) NONE ☐ (111) GAGE ROD ☐ (112) PIEZOMETERS ☐ (113) SEEPAGE WEIRS/FLUMES
☐ (114) SURVEY MONUMENTS ☐ (115) OTHER _____
MONITORING OF INSTRUMENTATION: ☐ (116) NO ☐ (117) YES PERIODIC INSPECTIONS BY: ☐ (118) OWNER ☐ (119) ENGINEER
Comments: _____

GOOD ☐ ACCEPTABLE ☐ POOR ☐ — MONITORING

MAINTENANCE AND REPAIR

PROBLEMS NOTED: ☐ (60) NONE ☐ (61) ACCESS ROAD NEEDS MAINTENANCE ☐ (62) CATTLE DAMAGE
☐ (63) BRUSH ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE ☐ (64) TREES ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE
☐ (65) RODENT ACTIVITY ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE ☐ (66) DETERIORATED CONCRETE-FACING, OUTLET, SPILLWAY
☐ (67) GATE AND OPERATING MECHANISM NEED MAINTENANCE ☐ (68) OTHER _____
Comments: _____

GOOD ☐ ACCEPTABLE ☐ POOR ☐ — MAINTENANCE AND REPAIRS

OVERALL CONDITIONS

REMARKS: _____

Based on this Safety Inspection and recent file review, the overall condition is determined to be:

☐ 71 SATISFACTORY ☐ 72 CONDITIONALLY SATISFACTORY ☐ 73 UNSATISFACTORY — OVERALL CONDITIONS

The State Engineer, by providing this dam safety inspection report, does not assume responsibility for any unsafe condition of the subject dam. The sole responsibility for the safety of this dam rests with the reservoir owner or operator, who should take every step necessary to prevent damages caused by leakage or overflow of waters from the reservoir or floods resulting from a failure of the dam.

ITEMS REQUIRING ACTION BY OWNER TO IMPROVE THE SAFETY OF THE DAM

MAINTENANCE - MINOR REPAIR - MONITORING

☐ (80) PROVIDE ADDITIONAL RIPRAP: _____
☐ (81) LUBRICATE AND OPERATE OUTLET GATES THROUGH FULL CYCLE: _____
☐ (82) CLEAR TREES AND/OR BRUSH FROM: _____
☐ (83) INITIATE RODENT CONTROL PROGRAM AND PROPERLY BACKFILL EXISTING HOLES: _____
☐ (84) GRADE CREST TO A UNIFORM ELEVATION WITH DRAINAGE TO THE UPSTREAM SLOPE: _____
☐ (85) PROVIDE SURFACE DRAINAGE FOR: _____
☐ (86) MONITOR: _____
☐ (87) DEVELOP AND SUBMIT AN EMERGENCY PREPAREDNESS PLAN. _____
☐ (88) OTHER: _____
☐ (89) OTHER: _____

ENGINEERING - EMPLOY AN ENGINEER EXPERIENCED IN DESIGN AND CONSTRUCTION OF DAMS TO: (Plans & Specification must be approved by State Engineer prior to construction.)

☐ (90) PREPARE PLANS AND SPECIFICATIONS FOR THE REHABILITATION OF THE DAM: _____
☐ (91) PREPARE AS-BUILT DRAWINGS OF: _____
☐ (92) PERFORM A GEOTECHNICAL INVESTIGATION TO EVALUATE THE STABILITY OF THE DAM: _____
☐ (93) PERFORM A HYDROLOGIC STUDY TO DETERMINE REQUIRED SPILLWAY SIZE: _____
☐ (94) PREPARE PLANS AND SPECIFICATIONS FOR AN ADEQUATE SPILLWAY: _____
☐ (95) SET UP A MONITORING SYSTEM INCLUDING WORK SHEETS, REDUCED DATA AND GRAPHED RESULTS: _____
☐ (96) PERFORM AN INTERNAL INSPECTION OF THE OUTLET: _____
☐ (97) OTHER: _____
☐ (98) OTHER: _____
☐ (99) OTHER: _____

SAFE STORAGE LEVEL RECOMMENDED AS A RESULT OF THIS INSPECTION

☐ (101) FULL STORAGE
☐ (102) CONDITIONAL FULL STORAGE
☐ (103) RECOMMENDED RESTRICTION → RESTRICTED LEVEL OFFICIAL ORDER TO FOLLOW

_____ FT. BELOW DAMS CREST
_____ FT. BELOW SPILLWAY CREST
_____ FT. GAGE HEIGHT
_____ NO STORAGE-MAINTAIN OUTLET FULLY OPEN
_____ _____

REASON FOR RESTRICTION: _____

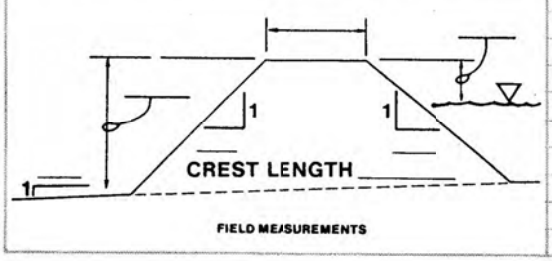
ACTIONS REQUIRED FOR CONDITIONAL FULL STORAGE OR CONTINUED STORAGE AT THE RESTRICTED LEVEL _____

Engineer's Signature _____ INSPECTED BY Owner's Signature _____ OWNER/OWNER'S REPRESENTATIVE DATE: ___/___/___

DC-22-2649a-86 pp 2 of ___

EXHIBIT "B"

DAM NAME_____ DAM ID_____ DATE__/__/__



FIELD MEASUREMENTS